REMARKS/ARGUMENTS

Claims 1, 2, 5-9, 11 and 12 are pending. By this Amendment, claims 3, 4, 10 and 13-18 are cancelled, and claims 1 and 2 are amended. Support for the amendments to claims 1 and 2 can be found, for example, in original claims 1 and 2. No new matter is added. In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

Rejections Under 35 U.S.C. §102/§103

A. Ames

The Office Action rejects claims 1, 2, 5-9, 11 and 12 under 35 U.S.C. §102(b), or in the alternative under 35 U.S.C. §103(a), over U.S. Patent No. 4,159,287 to Ames ("Ames"). Applicants respectfully traverse the rejection.

Claim 1 recites "[a] method for producing a modified propylene homopolymer, the method comprising: modifying a propylene homopolymer with a radical initiator and an organic acid; wherein the propylene homopolymer satisfies the conditions: (a) mmmm = 20 to 60 mol%; (b) [rrrr/(1-mmmm)] $\leqq$ 0.1; (c) rmrm > 2.5 mol%; (d) mm×rr/$(mr)^2$ $\leqq$ 2.0; and (e) a weight ratio (W25) of components eluted at 25°C or lower in a temperature programmed chromatography is 20 to 100% by weight" (emphasis added). Ames does not disclose or suggest such a method.

Ames discloses a method of modifying an amorphous polypropylene, in which anamorphous polyolefin is reacted with an unsaturated carboxylic acid component in the presence of a free radical initiator. *See* Ames, column 1, lines 51 to 55. According to Ames, the amorphous polyolefin is an essentially a non-crystalline hexane-soluble polyolefin, such as amorphous polypropylene, formed in small amounts during production of crystalline polypropylene by polymerization of propylene in the presence of stereospecific catalysts. *See*

Ames, column 2, lines 32 to 38. The polypropylene employed in the method of claim 1, however, is not an amorphous polypropylene. Rather, the polypropylene employed in claim 1 is a propylene homopolymer satisfying the conditions (a) mmmm = 20 to 60 mol%; (b) [rrrr/(1-mmmm)] $\leqq$ 0.1; (c) rmrm > 2.5 mol%; (d) mm×rr/$(mr)^2$ $\leqq$ 2.0; and (e) a weight ratio (W25) of components eluted at 25°C or lower in a temperature programmed chromatography is 20 to 100% by weight.

The amorphous polypropylene described in Ames is an atactic polypropylene and, thus, cannot have a meso pentad fraction (mmmm) of 20 to 60 mol%, as recited in claim 1 (a larger meso pentad fraction (mmmm) corresponds to higher stereoregularity). If a polypropylene homopolymer is employed that has a meso pentad fraction (mmmm) of less than 20 mol% (outside the scope of claim 1), the resulting polypropylene homopolymer is sticky. By contrast, if a polypropylene homopolymer is employed that has a meso pentad fraction (mmmm) of more than 60 mol% (outside the scope of claim 1) is employed, the resulting polypropylene homopolymer generally has a high elastic modulus. Ames fails to disclose or suggest employing a polypropylene homopolymer having the meso pentad fraction recited in claim 1.

When a polypropylene homopolymer satisfying the above conditions is modified, as recited in claim 1, a film or sheet formed from the modified homopolymer possesses an excellent balance among content of sticky components, low elastic modulus, and transparency. *See, e.g.,* present specification, page 17, lines 7 to 10. That is, a film or sheet formed from the modified polypropylene homopolymer of claim 1 has a low elastic modulus, excellent flexibility (or softness), a smaller quantity of sticky components, excellent surface properties (including less bleeding and transfer of the sticky components to another article), and excellent transparency. *See* present specification, page 17, lines 11 to 15. Ames does not

disclose or suggest the components employed in the method of claim 1, or recognize the benefits stemming therefrom.

Applicants further note that the present invention is also directed to methods, as described above, wherein the polypropylene homopolymer subjected to modification satisfies at least one of: (f) a molecular weight distribution (Mw/Mn) measured by a gel permeation chromatography (GPC) is 5 or less; and (g) a limiting viscosity [η] measured in tetralin at 135° C. is 0.1 dL/g or more. *See* claim 2. There is no indication or suggestion in Ames that a homopolymer satisfying one or both of such conditions should be employed.

As Ames fails to disclose or suggest a method of modifying a polypropylene homopolymer employing a homopolymer satisfying the conditions (a) to (e) discussed above, Ames fails to disclose or suggest each and every feature of claim 1.

As explained, claim 1 is not anticipated by and would not have been rendered obvious by Ames. Claims 2, 5-9, 11 and 12 depend from claim 1 and, thus, also are not anticipated by and would not have been rendered obvious by Ames. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Kehe

The Office Action rejects claims 1, 2, 5-9, 11 and 12 under 35 U.S.C. §102(b), or in the alternative under 35 U.S.C. §103(a), over U.S. Patent No. 3,616,047 to Kehe et al. ("Kehe"). Applicants respectfully traverse the rejection.

Claim 1 is set forth above. Kehe does not disclose or suggest such a method.

Kehe describes a modified polypropylene that can be obtained by reacting an unsaturated dicarboxylic acid or anhydride, such as maleic anhydride, with a polypropylene containing active sites that are capable of anchoring the dicarboxylic acid or anhydride thereon. *See* Kehe, column 3, lines 26 to 30. The polypropylene resin used as a starting

material in the method of Kehe is either an amorphous (atactic) polypropylene or a crystalline (syndiotactic or isotactic) polypropylene, the amorphous polypropylene being preferred. *See* Kehe, column 3, lines 44 to 49. The polypropylene employed in the method of claim 1, however, is not an amorphous (atactic) polypropylene or a crystalline (syndiotactic or isotactic) polypropylene. Rather, the polypropylene employed in claim 1 is a propylene homopolymer satisfying the conditions (a) mmmm = 20 to 60 mol%; (b) [rrrr/(1-mmmm)] $\leqq$ 0.1; (c) rmrm > 2.5 mol%; (d) mm×rr/$(mr)^2$ $\leqq$ 2.0; and (e) a weight ratio (W25) of components eluted at 25°C or lower in a temperature programmed chromatography is 20 to 100% by weight. A skilled artisan would understand that the polypropylene employed in the method of Kehe does not, e.g., have a meso pentad fraction (mmmm) of 20 to 60 mol%, as recited in claim 1.

For the foregoing reasons, and for the further reasons discussed above with respect to Ames, Kehe fails to disclose or suggest a method of modifying a polypropylene homopolymer employing a homopolymer satisfying the conditions (a) to (e) discussed above. Accordingly, Kehe fails to disclose or suggest each and every feature of claim 1.

As explained, claim 1 is not anticipated by and would not have been rendered obvious by Kehe. Claims 2, 5-9, 11 and 12 depend from claim 1 and, thus, also are not anticipated by and would not have been rendered obvious by Kehe. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

C. Templeton

The Office Action rejects claims 1, 2, 5-9, 11 and 12 under 35 U.S.C. §102(b), or in the alternative under 35 U.S.C. §103(a), over U.S. Patent No. 6,310,134 to Templeton et al. ("Templeton"). Applicants respectfully traverse the rejection.

Claim 1 is set forth above. Templeton does not disclose or suggest such a method.

Templeton describes a modified polyolefin that can be obtained by reacting an unsaturated carboxylic acid or acid anhydride with an amorphous polyolefin. *See* Templeton, column 2, lines 41 to 44. The polypropylene employed in the method of claim 1, however, is not an amorphous or atactic polyolefin. Rather, the polypropylene employed in claim 1 is a propylene homopolymer satisfying the conditions (a) mmmm = 20 to 60 mol%; (b) [rrrr/(1-mmmm)] $\leqq$ 0.1; (c) rmrm > 2.5 mol%; (d) mm×rr/$(mr)^2$ $\leqq$ 2.0; and (e) a weight ratio (W25) of components eluted at 25°C or lower in a temperature programmed chromatography is 20 to 100% by weight. A skilled artisan would understand that atactic polyolefin employed in the method of Templeton does not, e.g., have a meso pentad fraction (mmmm) of 20 to 60 mol%, as recited in claim 1.

For the foregoing reasons, and for the further reasons discussed above with respect to Ames, Templeton fails to disclose or suggest a method of modifying a polypropylene homopolymer employing a homopolymer satisfying the conditions (a) to (e) discussed above. Accordingly, Templeton fails to disclose or suggest each and every feature of claim 1.

As explained, claim 1 is not anticipated by and would not have been rendered obvious by Templeton. Claims 2, 5-9, 11 and 12 depend from claim 1 and, thus, also are not anticipated by and would not have been rendered obvious by Templeton. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

D. Hohner

The Office Action rejects claims 1, 2, 5-9, 11 and 12 under 35 U.S.C. §102(b), or in the alternative under 35 U.S.C. §103(a), over U.S. Patent No. 5,998,547 to Hohner ("Hohner"). Applicants respectfully traverse the rejection.

Claim 1 is set forth above. Hohner does not disclose or suggest such a method.

Hohner discloses a method of forming a partially crystalline polypropylene homopolymer wax modified to be polar and having an acid or saponification number of from 0.5 to 120 mg KOH/g, a melt viscosity of from 20 to 50,000 mPa.s/170 °C, and a softening point (ring/ball) of from 90 to 165 °C. *See* Hohner, column 2, lines 1 to 6. The modified wax employed in Hohner is obtained by reacting a nonpolar polypropylene homopolymer or copolymer wax with an α,β-unsaturated carboxylic acid or derivative in the presence of free-radical formers. *See* Hohner, column 2, lines 6 to 10. In contrast, the polypropylene employed in claim 1 is a propylene homopolymer satisfying the conditions (a) mmmm = 20 to 60 mol%; (b) [rrrr/(1-mmmm)] $\leqq$ 0.1; (c) rmrm > 2.5 mol%; (d) mm×rr/$(mr)^2$ $\leqq$ 2.0; and (e) a weight ratio (W25) of components eluted at 25°C or lower in a temperature programmed chromatography is 20 to 100% by weight.

Polypropylene homopolymer waxes used in working examples 1 to 8 of Hohner have softening points of from 131 to 161 °C. *See* Hohner, Table 1. Polypropylene homopolymers of high steroregularity necessarily have both softening points and melting points. Because the polypropylene homopolymer waxes described in Hohner have softening points and melting points, a skilled artisan would understand that those waxes have high stereoregularity. That is, the disturbance in the arrangement of propylene monomers in the polypropylene chain is small, yielding polypropylene homopolymer waxes having the softening points and stereoregularity described in Hohner. The polypropylene homopolymer waxes of Hohner would not be expected to have, e.g., a meso pentad fraction (mmmm) of 20 to 60 mol%, as recited in claim 1.

For the foregoing reasons, and for the further reasons discussed above with respect to Ames, Hohner fails to disclose or suggest a method of modifying a polypropylene homopolymer employing a homopolymer satisfying the conditions (a) to (e) discussed above. Accordingly, Hohner fails to disclose or suggest each and every feature of claim 1.

As explained, claim 1 is not anticipated by and would not have been rendered obvious by Hohner. Claims 2, 5-9, 11 and 12 depend from claim 1 and, thus, also are not anticipated by and would not have been rendered obvious by Hohner. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

For the foregoing reasons, Applicants submit that claims 1, 2, 5-9, 11 and 12 are in condition for allowance. Prompt reconsideration and allowance are respectfully requested.

Respectfully submitted,

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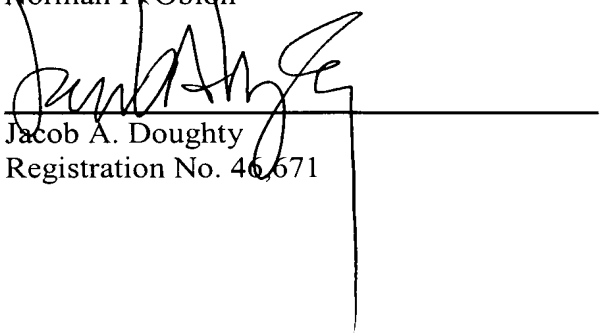

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